Maths: Whole School Overview

	Autumn Term	Spring Term	Summer Term
1	**Numbers to 10 / Part-whole within 10 (approx. 4 weeks)** Number: Place Value Count to ten, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 10 in numerals and words. Given a number, identify one more or one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. **Addition and Subtraction within 10 (approx. 4 weeks)** Number: Addition and Subtraction Represent and use number bonds and related subtraction facts within 10 Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Add and subtract one digit numbers to 10, including zero. Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems. **2D and 3D Shapes (approx. 1 week)** Geometry: Shape Recognise and name common 2-D shapes, including: (for example, rectangles (including squares), circles and triangles) Recognise and name common 3-D shapes, including: (for example, cuboids (including cubes), pyramids and spheres.) **Numbers to 20 (approx. 2 weeks)** Number: Place Value Count to twenty, forwards and backwards, beginning with 0 or 1, from any given number. Count, read and write numbers to 20 in numerals and words. Given a number, identify one more or one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than	**Addition and Subtraction within 20 (approx. 4 weeks)** Number: Addition and Subtraction Represent and use number bonds and related subtraction facts within 20 Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Add and subtract one-digit and two-digit numbers to 20, including zero. Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7= ☐ – 9 **Numbers to 50 (approx. 3 weeks)** Place Value Count to 50 forwards and backwards, beginning with 0 or 1, or from any number. Count, read and write numbers to 50 in numerals. Given a number, identify one more or one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. Count in multiples of twos, fives and tens. **Introducing Length and Height (approx. 2 weeks)** Measurement: Length and Height Measure and begin to record lengths and heights. Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half) **Introducing Weight and Volume (approx. 2 weeks)** Measurement: Weight and Volume Measure and begin to record mass/weight, capacity and volume. Compare, describe and solve practical problems for mass/weight: [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]	**Multiplication and Division (approx. 3 weeks)** Number: Multiplication and Division Count in multiples of twos, fives and tens. Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. **Fractions - Halves and Quarters (approx. 3 weeks)** Number: Fractions Recognise, find and name a half as one of two equal parts of an object, shape or quantity. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half) Compare, describe and solve practical problems for: mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] **Position and Direction (approx. 1 week)** Geometry: position and direction Describe position, direction and movement, including whole, half, quarter and three quarter turns **Numbers to 100 (approx. 2 weeks)** Number: Place Value Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 100 in numerals. Given a number, identify one more and one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than, most, least. **Time (approx. 3 weeks)** Measurement: Time Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday,

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	(fewer), most, least.		tomorrow, morning, afternoon and evening. Recognise and use language relating to dates, including days of the week, weeks, months and years. Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later] Measure and begin to record time (hours, minutes, seconds) **Money (approx. 1 week)** Measurement: Money Recognise and know the value of different denominations of coins and notes.

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2	**Numbers to 100 (approx. 3 weeks)** Number – Place Value Read and write numbers to at least 100 in numerals and in words. Recognise the place value of each digit in a two digit number (tens, ones) Identify, represent and estimate numbers using different representations including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. Use place value and number facts to solve problems. Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward. **Addition and Subtraction (approx. 5 weeks)** Number – Addition and Subtraction Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers. Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	**Multiplication and Division (approx. 2 weeks)** Multiplication and Division Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. **Statistics (approx. 2 weeks) cross curricular learning opportunities** Statistics Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. Ask and answer questions about totalling and comparing categorical data. **Length and Height (approx. 3 weeks)** Measurement: length and height Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using >, < and = **Properties of Shapes (approx. 3 weeks)**	**Position and Direction (approx. 3 weeks)** Position and Direction Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise). Order and arrange combinations of mathematical objects in patterns and sequences **Problem Solving and Efficient Methods (approx. 2 weeks)** **Time (approx. 2 weeks)** Measurement: Time Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. Know the number of minutes in an hour and the number of hours in a day. Compare and sequence intervals of time. **Weight, Volume and Temperature (approx. 3 weeks)** Measurement: Mass, Capacity and Temperature Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using >, < and =

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	Money (approx. 2 weeks) Measurement: Money Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. Find different combinations of coins that equal the same amounts of money. Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. **Multiplication and Division (approx. 2 weeks)** Multiplication and Division Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	Geometry- properties of shape Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid.] Compare and sort common 2-D and 3-D shapes and everyday objects. **Fractions (approx. 1 week)** Number – fractions Recognise, find, name and write fractions 13, 14, 24 and 34 of a length, shape, set of objects or quantity. Write simple fractions for example, 12 of 6 = 3 and recognise the equivalence of 24 and 12.	

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3	**Place Value Within 1,000 (approx. 3 weeks)** Number – Place Value Identify, represent and estimate numbers using different representations. Find 10 or 100 more or less than a given number Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Compare and order numbers up to 1000 Read and write numbers up to 1000 in numerals and in words. Solve number problems and practical problems involving these ideas. Count from 0 in multiples of 4, 8, 50 and 100 **Addition and Subtraction (approx. 5 weeks)** Number – Addition and Subtraction Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three digit number and hundreds. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.	**Multiplication and Division (approx. 3 weeks)** Number – multiplication and division Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objectives. **Money (approx. 1 week)** Measurement – money Add and subtract amounts of money to give change, using both £ and p in practical contexts. **Statistics (approx. 2 weeks) cross curricular learning opportunities** Statistics Interpret and present data using bar charts, pictograms and tables.	**Fractions (approx. 3 weeks)** Number – fractions Recognise and show, using diagrams, equivalent fractions with small denominators. Compare and order unit fractions, and fractions with the same denominators. Add and subtract fractions with the same denominator within one whole [for example, 57 + 17 = 67] Solve problems that involve all of the above. **Time (approx. 3 weeks)** Measurement – time Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks. Estimate and read time with increasing accuracy to the nearest minute. Record and compare time in terms of seconds, minutes and hours. Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. Know the number of seconds in a minute and the number of days in each month, year and leap year. Compare durations of events [for example to calculate the time taken by particular events or tasks].

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	Estimate the answer to a calculation and use inverse operations to check answers. Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. **Multiplication and Division (approx. 4 weeks)** Number – Multiplication and Division Count from 0 in multiples of 4, 8, 50 and 100 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objectives.	Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. **Length (approx. 3 weeks)** Measurement – length and perimeter Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). Measure the perimeter of simple 2D shapes. **Fractions (approx. 2 weeks)** Number – fractions Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Solve problems that involve all of the above.	**Angles and Properties of Shapes (approx. 2 weeks)** Geometry – properties of shape Recognise angles as a property of shape or a description of a turn. Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. Draw 2-D shapes and make 3-D shapes using modelling materials. Recognise 3-D shapes in different orientations and describe them. **Mass and Capacity (approx. 3 weeks)** Measurement – mass and capacity Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).

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4	**Place Value: 4-digit numbers (approx. 4 weeks)** Number – Place Value Count in multiples of 6, 7, 9. 25 and 1000. Find 1000 more or less than a given number. Recognise the place value of each digit in a four digit number (thousands, hundreds, tens and ones) Order and compare numbers beyond 1000 Identify, represent and estimate numbers using different representations. Round any number to the nearest 10, 100 or 1000 Solve number and practical problems that involve all of the above and with increasingly large positive numbers. Count backwards through zero to include negative numbers. Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place	**Multiplication and Division (approx. 3 weeks)** Number – multiplication and division Recall and use multiplication and division facts for multiplication tables up to 12 × 12. Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations. Multiply two digit and three digit numbers by a one digit number using formal written layout. Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	**Decimals (approx. 2 weeks)** Decimals Compare numbers with the same number of decimal places up to two decimal places. Round decimals with one decimal place to the nearest whole number. Recognise and write decimal equivalents to 14, 12 and 34 Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths **Money (approx. 2 weeks)** Measurement- Money Estimate, compare and calculate different measures,

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	value. **Addition and Subtraction (approx. 3 weeks)** Number- Addition and Subtraction Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Estimate and use inverse operations to check answers to a calculation. Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why. **Measure: Perimeter (approx. 1 week)** Measurement: Length and Perimeter Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Convert between different units of measure [for example, kilometre to metre] **Multiplication and Division (approx. 3 weeks)** Number – Multiplication and Division Recall and use multiplication and division facts for multiplication tables up to 12 × 12. Count in multiples of 6, 7, 9. 25 and 1000 Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	**Measure: Area (approx. 1 week)** Measurement- Area Find the area of rectilinear shapes by counting squares. **Fractions (approx. 4 weeks)** Fractions Recognise and show, using diagrams, families of common equivalent fractions. Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. Add and subtract fractions with the same denominator. **Decimals (approx. 3 weeks)** Decimals Recognise and write decimal equivalents of any number of tenths or hundredths. Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths Solve simple measure and money problems involving fractions and decimals to two decimal places. Convert between different units of measure [for example, kilometre to metre]	including money in pounds and pence. Solve simple measure and money problems involving fractions and decimals to two decimal places. **Time (approx. 1 week)** Time Convert between different units of measure [for example, kilometre to metre; hour to minute] Read, write and convert time between analogue and digital 12- and 24-hour clocks. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. **Statistics (approx. 2 weeks) cross curricular learning opportunities** Statistics Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. **Geometry: Angles and 2D Shapes (approx. 3 weeks)** Geometry: Properties of shape Identify acute and obtuse angles and compare and order angles up to two right angles by size. Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Identify lines of symmetry in 2-D shapes presented in different orientations. Complete a simple symmetric figure with respect to a specific line of symmetry. **Geometry: Position and Direction (approx. 1 week)** Geometry- Position and Direction Describe positions on a 2-D grid as coordinates in the first quadrant. Plot specified points and draw sides to complete a given polygon. Describe movements between positions as translations of a given unit to the left/ right and up/ down.

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5	**Place Value within 100,000 and then within 1,000,000 (approx. 3 weeks)** Number – Place Value Read, write, order and compare numbers to at least 1000000 and determine the value of each digit. Count forwards or backwards in steps of powers of 10 for any given number up to 1000000. Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero. Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000 Solve number problems and practical problems that involve all of the above. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. **Addition and Subtraction (approx. 2 weeks)** Number- Addition and Subtraction Add and subtract numbers mentally with increasingly large numbers. Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. **Statistics: Graphs and Tables (approx. 2 weeks) cross curricular learning opportunities** Statistics Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables including timetables. **Multiplication and Division (approx. 2 weeks)** Number – multiplication and division Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers by 10, 100 and 1000. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3)	**Multiplication and Division (approx. 3 weeks)** Number – Multiplication and Division Multiply and divide numbers mentally drawing upon known facts. Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers. Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context. Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign. **Fractions (approx. 6 weeks)** Number: Fractions Compare and order fractions whose denominators are multiples of the same number. Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths. Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example 25 + 45 = 65 = 1 15] Add and subtract fractions with the same denominator and denominators that are multiples of the same number. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Read and write decimal numbers as fractions [for example 0.71 = 71100] Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. **Decimals and Percentages (approx. 2 weeks)** Number: Decimals and Percentages Read, write, order and compare numbers with up to three decimal places. Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Round decimals with two decimal places to the nearest whole number and to one decimal place. Solve problems involving number up to three decimal places. Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. Solve problems which require knowing percentage and decimal equivalents of 12, 14, 15, 25, 45 and those fractions with a denominator of a multiple of 10 or 25.	**Decimals (approx. 4 weeks)** Number: Decimals Solve problems involving number up to three decimal places. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. **Geometry: Properties of Shapes (approx. 3 weeks)** Geometry- Properties of Shapes and Angles Identify 3D shapes, including cubes and other cuboids, from 2D representations. Use the properties of rectangles to deduce related facts and find missing lengths and angles. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Draw given angles, and measure them in degrees (o) Identify: angles at a point and one whole turn (total 360o), angles at a point on a straight line and ½ a turn (total 180o) other multiples of 90o **Geometry: Position and Direction (approx. 1 week)** Geometry- position and direction Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. **Measure: Converting Units (approx. 2 weeks)** Measurement- converting units Convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml] Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Solve problems involving converting between units of time. **Measure: Volume and Capacity (approx. 1 week)** Measures Volume Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water] Use all

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	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19 **Measure: Area and Perimeter (approx. 2 weeks)** Perimeter and Area Measure and calculate the perimeter of composite rectilinear shapes in cm and m. Calculate and compare the area of rectangles (including squares), and including using standard units, cm2, m2 estimate the area of irregular shapes.		four operations to solve problems involving measure.

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6	**Number and place value ; Mental multiplication and division; Decimals, percentages and their equivalence to fractions; Fractions, ratio and proportion** Read, write and compare 6-digit numbers and know what each digit represents; read, write and compare 1-, 2- and 3-place decimal numbers; multiply and divide by 10, 100 and 1000; round decimals to nearest tenth and whole number and place on a number line; convert decimals (up to 3 places) to fractions and vice-versa. **Mental addition and subtraction; Number and place value; Written addition and subtraction; Decimals, percentages and their equivalence to fractions; Problem solving, reasoning and algebra** Use mental addition strategies to solve additions including decimal numbers; use column addition to add 5-digit numbers, decimal numbers and amounts of money; solve problems involving number up to 3 decimal places, choose an appropriate method to solve decimal addition. **Problem solving, reasoning and algebra; Mental addition and subtraction** Express missing number problems algebraically and find pairs of numbers that satisfy equations involving two unknowns; find missing lengths and angles; understand how brackets can be used in calculation problems; use knowledge of the order of operations to carry out calculations involving the four operations, solve addition and subtraction multi-step problems using	**Number and place value; Written addition and subtraction** Read and write numbers with up to 7-digits, understanding what each digit represents; work systematically to find out how many numbers round to 5000000; solve subtraction of 5- and 6-digit numbers using written column method (decomposition). **Decimals, percentages and their equivalence to fractions; Fractions, ratio and proportion** Multiply and divide by 10, 100 and 1000; compare and order numbers with up to three decimal places; know common fraction / decimal equivalents; multiply pairs of unit fractions and multiply unit fractions by non-unit fractions **Mental multiplication and division; Written multiplication and division; Problem solving, reasoning and algebra; Number and place value** Use partitioning to mentally multiply 2-digit numbers with one decimal place by whole 1-digit numbers; multiply numbers with two decimal places; use short multiplication to multiply amounts of money; use estimation to check answers to calculations; use long multiplication to multiply 3-digit and 4-digit numbers by numbers between 10 and 30. **Geometry: properties of shapes; Problem solving, reasoning and algebra** Name, classify and identify properties of quadrilaterals; explore how diagonal lines can bisect quadrilaterals; understand what an angle is and that it is measured in degrees; know what the angles of triangles, quadrilaterals, pentagons, hexagons and octagons add to and use these facts and	**Number and place value; Decimals, percentages and their equivalence to fractions** Revise reading, writing, comparing and ordering numbers with up to seven digits and decimal numbers with up to three decimal places; revise rounding decimal numbers to the nearest tenth and whole number; revise rounding big numbers to the nearest thousand, ten thousand, hundred thousand and million; revise locating a number on a number line marking numbers it lies between; revise comparing and ordering negative numbers including calculating differences between negative numbers and positive and negative numbers **Number and place value; Mental addition and subtraction; Written addition and subtraction; Decimals, percentages and their equivalence to fractions; Fractions, ratio and proportion; Problem solving, reasoning and algebra; Geometry: properties of shapes** Revise adding and subtracting whole numbers and decimal numbers using mental and written methods; revise finding percentages of numbers, converting fractions, decimals and percentages and making comparisons using percentages; revise how brackets can be used in calculation problems, revise the order of operations for calculations involving the four operations; revise solving missing number problems using inverse operations; revise using trial and improvement to solve equations involving one or two unknowns, and find missing lengths and angles **Mental addition and subtraction; Fractions, ratio and proportion; Written multiplication and division; Mental multiplication and division; Problem**

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	knowledge of the order of operations. **Measurement; Problem solving, reasoning and algebra; Number and place value** Convert between grams and kilograms, millilitres and litres, millimetres and centimetres, centimetres and metres, metres and kilometres, and miles and kilometres; revise reading the 24-hour clock and convert 12-hour times to 24-hour; read and write Roman numerals; find time intervals using the 24-hour clock. **Mental addition and subtraction; Written addition and subtraction; Number and place value; Problem solving, reasoning and algebra** Use mental addition, column subtraction and Counting up to solve subtractions of amounts of money and word problems; use mathematical reasoning to investigate. **Mental multiplication and division; Written multiplication and division; Mental addition and subtraction; Problem solving, reasoning and algebra; Number and place value** Use mental multiplication strategies to multiply by numbers such as 4, 8, 5, 25, 19, 29 and 99; revise using short multiplication to multiply 4-digit numbers by 1-digit numbers and use this to multiply amounts of money; solve word problems involving multiplication including two-step problems and finding change; use long multiplication to multiply 3-digit and 4-digit numbers by teens numbers. **Number and place value; Problem solving, reasoning and algebra; Fractions, ratio and proportion** Understand negative numbers; calculate small differences between negative numbers and negative and positive numbers; add and subtract negative numbers; compare fractions with unlike, but related, denominators; correctly	mathematical reasoning to calculate missing angles; recognise and identify the properties of circles and name their parts; draw circles using pairs of compasses; draw polygons using a ruler and a protractor **Mental addition and subtraction; Number and place value; Written addition and subtraction; Problem solving, reasoning and algebra** Add and subtract numbers using mental strategies; solve addition of 4- to 7-digit numbers using written column addition; identify patterns in the number of steps required to generate palindromic numbers; solve subtraction of 5-, 6- and 7-digit numbers using written column method (decomposition); solve additions and subtractions choosing mental strategies or written procedures as appropriate; read, understand and solve word problems **Written multiplication and division; Number and place value; Problem solving, reasoning and algebra** Identity common factors and common multiples; understand that a prime number has exactly two factors and find prime numbers less than 100; understand what a composite (non-prime) number is; use long division to divide 3- and 4-digit numbers by 2-digit numbers, giving remainders as a fraction, simplifying where possible **Mental addition and subtraction; Written addition and subtraction; Problem solving, reasoning and algebra** Solve addition and subtraction multi-step problems in shopping contexts, and add and subtract money using column addition and counting up; add and subtract decimal numbers choosing an appropriate strategy, and add decimal numbers with different numbers of places using column addition; use mathematical reasoning to investigate and solve problems, and solve subtractions of decimal numbers with different numbers of places (2-places) using counting up **Statistics; Decimals, percentages and their equivalence to fractions - cross curricular learning opportunities** Calculate and understand the mean average; construct and interpret distance/time line graphs where intermediate points have meaning, including conversion line graphs; understand pie charts are a way of representing data	**solving, reasoning and algebra; Number and place value** Revise scaling, using mental strategies for multiplying and dividing; revise solving problems involving rate; revise multiplying pairs of 2-digit numbers and finding factors of 2-digit numbers; multiply 3-digit and 4-digit numbers including decimals by whole 1-digit numbers and solve word problems involving multiplication of money and measures; use a systematic approach to solve problems involving multiplication and division, including long multiplication of 3-digit and 4-digit numbers and decimals **Written multiplication and division; Problem solving, reasoning and algebra; Number and place value; Statistics; Geometry: position and direction** Revise using short division to find unit fractions of amounts, including decimals, and round answers to money problems according to the context; revise using long division to divide 4-digit by 2-digit numbers, giving remainders as a fraction, simplifying where possible; revise using long division to divide 3-digit and 4-digit numbers by numbers between 10 and 30, writing the fractional part of the answer as a decimal where equivalents are known; revise calculating the mean average; revise reading and marking coordinates in all four quadrants, draw simple polygons and find missing coordinates on a polygon or line **Number and place value; Fractions, ratio and proportion; Measurement** Revise equivalence simplifying fractions and changing improper fractions into mixed numbers and vice versa; revise adding and subtracting fractions with different denominators, including those which give answers greater than 1; revise multiplying pairs of fractions and multiplying and dividing fractions by whole numbers; solving problems involving ratios; read intermediate points off scales **Geometry: properties of shapes; Measurement; Statistics** Revise properties and classification of 2D shapes, drawing 2D shapes using

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	use the terms fraction, denominator and numerator; understand what improper fractions and mixed numbers are and add fractions with the same denominator, writing the answer as a mixed number **Measurement; Geometry: properties of shapes** Calculate the perimeter, area and volume of shapes, and know their units of measurement; understand that shapes can have the same perimeters but different areas and vice versa; calculate the area of a triangle using the formula $A = 1/2\ b \times h$; find the area of parallelograms using the formula $A = b \times h$; name and describe properties of 3D shapes; systematically find and compare nets for different 3D shapes. **Mental multiplication and division; Fractions, ratio and proportion ; Written multiplication and division ; Problem solving, reasoning and algebra** Use mental strategies to divide by 2, 4, 8, 5, 20 and 25; find non-unit fractions of amounts; use short division to divide 3- and 4-digit numbers by 1-digit numbers, including those which leave a remainder; express a remainder as a fraction, simplifying where possible. **Fractions, ratio and proportion ; Problem solving, reasoning and algebra; Decimals, percentages and their equivalence to fractions** Add and subtract unit fractions with different denominators including mixed numbers; use mental strategies to find simple percentages of amounts, including money **Fractions, ratio and proportion** Multiply fractions less than 1 by whole numbers, converting improper fractions to whole numbers; use commutativity to efficiently multiply fractions by whole numbers; divide unit and non-unit fractions by whole numbers; solve word problems involving fractions.	using percentages, interpret and construct pie charts **Geometry: position and direction; Number and place value; Problem solving, reasoning and algebra; Geometry: properties of shapes** Read and plot coordinates in all four quadrants, draw and translate simple polygons using coordinates and find missing coordinates for a vertex on a polygon; draw and reflect simple polygons in both the x-axis and y-axis using coordinates; find unknown angles around a point, on a line, in a triangle or vertically opposite and in polygons where diagonals intersect **Written multiplication and division; Problem solving, reasoning and algebra** Multiply 4-digit numbers including those with two decimal places by 1-digit numbers; use long multiplication to multiply 4-digit numbers by numbers between 10 and 30, including those with two decimal places; revise using short division to divide 4-digit by 1-digit and 2-digit numbers including those which leave a remainder, and divide the remainder by the divisor to give a fraction, simplifying where possible, and make approximations; use long division to divide 4-digit by 2-digit numbers, and use a systematic approach to solve problems **Problem solving, reasoning and algebra; Fractions, ratio and proportion** Generalise a relationship between pairs of numbers, express simple formulae in words, then using letters; describe and continue sequences, generalise to predict the tenth term, begin to generalise a term in a sequence using *n* to stand for the number of the term in a sequence; describe ratio and use ratio to solve problems; find fractions and simplify ratios	ruler, protractor and compasses, parts of a circle and angles in polygons; revise calculating missing angles by knowing angle facts; use a protractor to measure and draw angles in degrees; identify and name acute, right, obtuse and reflex angles; understand perimeter, area and volume; find the perimeter of rectangles, find the area of rectangles, parallelograms and triangles, and find the volumes of cubes and cuboids; revise reading and interpreting different types of data display **Number and place value; Problem solving, reasoning and algebra; Geometry: position and direction; Written multiplication and division** Use mathematical reasoning to investigate and solve problems, and to estimate and predict; solve problems using doubling, solve calculations with enormous numbers; find out about famous mathematicians including Brahmagupta and John Napier and use their different methods to multiply; use lattice multiplication to solve multiplications of 2-, 3- and 4-digit numbers; begin to compare historical multiplication methods **Number and place value; Problem solving, reasoning and algebra; Geometry: properties of shapes** Explore binary numbers; solve mathematical puzzles; including using multiplication facts, find digital roots and look for patterns; explore Fibonacci sequences and Pythagoras' theorem

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	Autumn Term	Spring Term	Summer Term
R	**Baseline assessment of learning** **Numbers** *(Using numbers 1 – 5)* **(approx. 3 weeks)** **Children count reliably with numbers from 1 to 5** Recognise some numerals of personal significance. Recognises numerals 1 to 5. Counts up to three or four objects by saying one number name for each item. Count actions or objects which cannot be moved. Selects the correct numeral to represent 1 to 5 objects. Counts an irregular arrangement of up to 5 objects. **Shape, space and measures (approx. 2 weeks)** **Explore characteristics of everyday objects and shapes and use mathematical language to describe them.** **Recognise, create and describe patterns.** Beginning to use mathematical names for 'flat' 2D shapes, and mathematical terms to describe shapes.	**Numbers** *(Using numbers 1 – 10)* **(approx. 3 weeks)** **Children count reliably with numbers from 1 to 10** Recognises numerals 1 to 10. Counts out up to 10 objects from a larger group. Count actions or objects which cannot be moved. Selects the correct numeral to represent 1 to 10 objects. Counts objects to 10. Counts an irregular arrangement of up to 10 objects. **Shape, space and measures (approx. 3 weeks)** **Children use everyday language to talk about size, weight and capacity to compare quantities and objects and to solve problems.** Orders two or three items by length or height. Orders two items by weight or capacity. **Numbers** *(Securing numbers 1-10)* **(approx. 3 weeks)** **Place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.**	**Numbers** *(Using numbers 1 – 20)* **(approx. 2 weeks)** **Children count reliably with numbers from 1 to 20** Recognises numerals 1 to 20. Counts out up to 20 objects from a larger group. Count actions or objects which cannot be moved. Selects the correct numeral to represent 1 to 20 objects. Counts objects to 20. Counts an irregular arrangement of up to 20 objects. **Numbers** *(Securing numbers 1-20)* **(approx. 2 weeks)** **Place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.** Uses the language of 'more' and 'fewer' to compare two sets of objects. Finds the total number of items in two groups by counting all of them. Says the number that is one more than a given number.

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	Selects a particular named shape. Use familiar objects and common shapes to create and recreate patterns and build models. **Shape, space and measures (approx. 1 week)** **Children use everyday language to talk about money.** Beginning to use everyday language related to money. **Numbers** *(Securing numbers 1-5)* **(approx. 3 weeks)** **Place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.** Uses the language of 'more' and 'fewer' to compare two sets of objects. Finds the total number of items in two groups by counting all of them. Says the number that is one more than a given number. Finds one more or one less from a group of up to five objects. In practical activities and discussion, begin to use the vocabulary involved in adding and subtracting.	Uses the language of 'more' and 'fewer' to compare two sets of objects. Finds the total number of items in two groups by counting all of them. Says the number that is one more than a given number. Finds one more or one less from a group of up to 10 objects. In practical activities and discussion, begin to use the vocabulary involved in adding and subtracting. Estimates how many objects they can see and checks by counting them. **Shape, space and measures (approx. 2 weeks)** **Explore characteristics of everyday objects and shapes and use mathematical language to describe them.** **Recognise, create and describe patterns.** Beginning to use mathematical names for 'solid' 3D shapes and mathematical terms to describe shapes. Selects a particular named shape. Use familiar objects and common shapes to create and recreate patterns and build models. **Shape, space and measures (approx. 1 week)** **Children use everyday language to talk about time to compare quantities and to solve problems.** Uses everyday language related to time. Orders and sequences familiar events. Measures short periods of time in simple ways.	Finds one more or one less from a group of up to 20 objects. In practical activities and discussion, begin to use the vocabulary involved in adding and subtracting. Estimates how many objects they can see and checks by counting them. **Numbers (approx. 3 weeks)** **Solve problems including doubling, halving and sharing** In practical activities and discussion, begin to use the vocabulary involved in doubling, halving and sharing. **Shape, space and measures (approx. 3 weeks)** **Children use everyday language to talk about position and distance to compare quantities and objects and to solve problems.** Can describe their relative position such as 'behind' or 'next to'.

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